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(71) Applicant (for all designated States except US): **THE PROCTER & GAMBLE COMPANY** [US/US]; One Procter & Gamble Plaza, Cincinnati, OH 45202 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **VOLPENHEIN, Daniel, William** [US/US]; 4769 White Blossom Boulevard, Mason, OH 45040 (US). **SOLANKI, Sanjay, Amratlal** [GB/GB]; 46 Willson Road, Englefield Green, Surrey TW20 0QB (GB). **DESWARTE, Gregory** [FR/US]; 327 Riverside Drive #2, Covington, KY 41011 (US).

(74) Agents: **REED, T., David et al.**; The Procter & Gamble Company, 5299 Spring Grove Avenue, Cincinnati, OH 45217-1087 (US).

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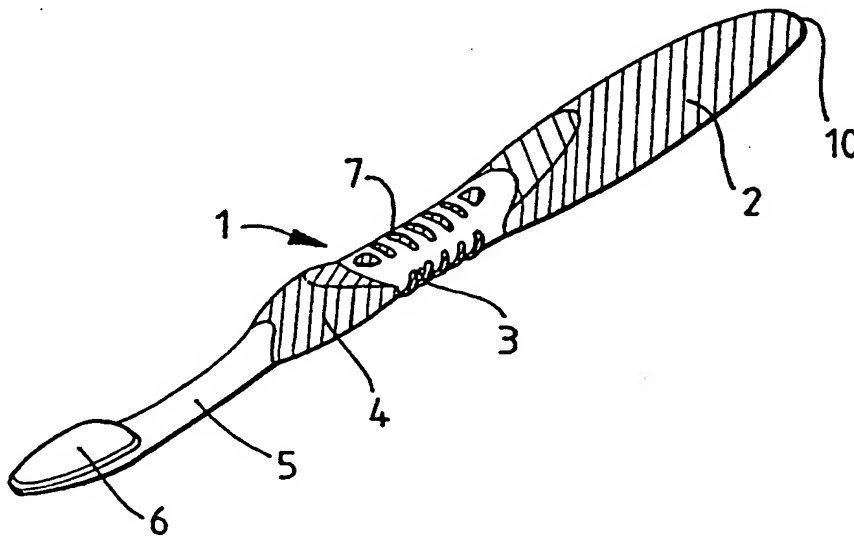
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(54) Title: A HANDLE FOR A TOOTHBRUSH



(57) Abstract: The handle of the present invention is for a personal care implement, especially for a toothbrush. The handle has distal and proximal ends, the distal end being connected to, or adapted to connect to, a grooming head. The handle comprises: a) first grip portion (2), adjacent the proximal end of the handle, for holding in the user's hand, the first grip portion having an ovoid cross-section which has a major axis and a minor axis; b) a second grip portion (3), for manipulation by the user's fingers, extending from the first grip portion in the direction of the distal end of the handle, and having, at least in a region adjacent the first grip portion, an elliptical cross-section which has a major axis and a minor axis. The major axis of the second grip portion is perpendicular to the major axis of the first grip portion. The handle is comfortable to hold, provides a firm grip and facilitates manipulation, particularly rotation, by the user.

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A HANDLE FOR A TOOTHBRUSH

Field Of The Invention

The present invention relates to handles for personal care implements, more especially for toothbrushes.

Background Of The Invention

In order to function effectively, toothbrushes and other such hand-held implements require to be gripped firmly. However they often require the grip to be frequently changed, such as by rotating the handle within the user's hand, in order, for example, to reach different parts of the mouth, to adjust to brushing of different tooth surfaces or to employ varying brushing orientations as recommended by dental professionals.

Surprisingly, most toothbrushes still have a rather conventional handle which is typically rectangular, circular, or rounded rectangular in cross-section, with the cross-section being more or less the same shape along the length of the handle. Improvements to the grip are generally confined to the inclusion of elastomeric inserts. Nevertheless, the patent literature documents several attempts to improve upon the basic design.

US 4,780,924 describes an ergonomically designed toothbrush with a shaped handle which is comfortable to grasp in numerous ways with either hand. Although the handle has a distinctive shape in side view, it is described as being substantially rectangular in cross-section throughout its length.

US 5,191,671 describes a toothbrush with a handle having a trapezoidal cross-section which both aids in orientation of the bristles in the mouth and provides strength.

WO 96/01577 describes a toothbrush with a radial anti-slip structure protruding from and circumscribing the bottom and lateral surfaces of the handle. A stated advantage of this arrangement is that it does not force gripping at any predisposed orientation but allows for holding the toothbrush in the user's most habitual manner.

WO 97/07706, in the name of Colgate-Palmolive Company, describes a toothbrush with a handle which has an end portion, a shoulder and a waist, the waist being narrower in plan

but it is envisaged that it would also be suitable for similar personal care implements such as razors, hairbrushes, tongue scrapers and the like.

Detailed Description of the Invention

Definitions

The longitudinal axis of the handle is that which extends between the distal and proximal ends thereof. Other references to longitudinal should be taken to refer to directions along or parallel to the longitudinal axis unless specified otherwise.

Unless specified otherwise, handle cross-sections referenced herein should be taken perpendicular to the longitudinal axis of the handle.

Major axes refer to the longest dimensions of the cross-sections to which they refer. Minor axes refer to the longest dimensions of the same cross-sections drawn perpendicular to the major axes. A minor axis will always be shorter than the corresponding major axis.

By "ovoid" is meant a 2-dimensional figure approximately corresponding to the typical lengthwise cross-section of an egg, that is a generally rounded figure having one end which is more pointed than the other. It includes, for example, figures which may have partially flattened portions provided that the overall ovoid impression is retained.

Handle

The handle of the invention has distal and proximal ends. The distal end is connected to, or is adapted to connect to, a grooming head. That is, the grooming head is integrally formed with or can be detachably connected to the handle, for example to permit replacement of a worn head or to allow substitution of a different type of head, such as a gum massager, tongue scraper, tooth pick, compact brush or interdental brush for a regular brush head. The form of the head is not critical to the invention, although a correlation between the shape of the head and the first grip portion of the handle can provide additional benefits as discussed below.

In a preferred embodiment the handle has a head integrally moulded with it, the head bearing bristles or being subsequently fitted with bristles, such that it forms a toothbrush. The head, excluding bristles and massaging elements, can be of single construction or it can be multi-segmented as set out in WO-A-98/27846, incorporated herein by reference. Preferably it is of single construction. In a further particularly preferred embodiment the head comprises both bristles and massaging elements as disclosed in co-pending application 99GB-013717, incorporated herein by reference in its entirety. In the

diagnostic elements; or merely a thinner skeleton which more easily fits into a conventional toothbrush holder. Alternatively, or additionally a removable first grip portion, or outer part thereof, can be adapted to provide a cap which can fit over the head which is attached to the distal end of the handle. In this way the whole implement can be adapted to occupy a smaller space when not being used and/or the head can be kept clean, making it particularly suited for travel usage. Suitable auxiliary grooming heads herein include, but are not limited to a gum massager, tongue scraper, tooth pick, compact brush or interdental brush.

The second grip portion of the handle extends from the first grip portion in the direction of the distal end of the handle. It is particularly for manipulation by the user's fingers and has, at least in a region adjacent the first grip portion, an elliptical cross-section having major and minor axes. The second grip portion typically has a longitudinal length of from about 20 to about 45 mm, preferably from about 25 to about 35 mm. Suitably the cross-section of the second grip portion is elliptical along 70% or more, preferably 90% or more of its length. The elliptical cross-section has a major axis and a minor axis which are preferably in the ratio of from 1.3:1 to 1.1:1, preferably from 1.2:1 to 1.1:1. Again the precise values of the ratio may vary along the length of the second grip portion but this will generally be true along 70% or more, preferably 90% or more of its length. The maximum value of the major axis of the second grip portion is preferably in the range from about 8 to about 14 mm, more preferably from about 10 to about 12 mm. The maximum value of the minor axis of the second grip portion is preferably in the range from about 8 to about 10 mm.

The major axis of the second grip portion is perpendicular to the major axis of the first grip portion.

The minor axis of the second grip portion extends between top and bottom surfaces thereof. In preferred embodiments at least one of the top and bottom surfaces, preferably both, has gripping ridges thereon. These are preferably formed from an elastomer and can readily be incorporated using conventional moulding techniques. The ridges, which preferably extend in a transverse direction along the surface(s), do not generally project from the surface(s) by more than about 1 mm and may also extend around the sides of the second grip portion. In measuring or calculating dimensions or ratios of the second grip portion any ridges present should be excluded.

In preferred embodiments herein the handle further comprises a third grip portion distal the second grip portion, the third grip portion being both wider and deeper than the second grip portion. The third grip portion can act as a thumb stop and is preferably

Figure 6 is a cross-section through the first grip portion at F-F.

Detailed Description Of The Drawings

Referring now to the drawings in detail wherein like numerals indicate the same element throughout the views there is shown in Figures 1 to 6 a handle according to the invention generally indicated as 1. The handle comprises first, second and third grip portions indicated respectively as 2, 3 and 4. The handle further comprises a slim neck 5 and has a head 6 integrally attached to distal end of the handle 1. In the preferred embodiment the head 6 has bristles extending from the upper face of the head 6, these are not shown however. In this embodiment the head, neck and second grip portion are all part of an unitarily formed polypropylene skeleton which extends the entire length of the brush. First and third grip portions, 2 and 4, have an outer coating of elastomer. The second grip portion further comprises gripping ridges 7 which extend transversely across and project from the upper and lower surfaces. A channel 8 running longitudinally along the handle connects the various elastomeric areas so that they can be manufactured by single-point injection moulding.

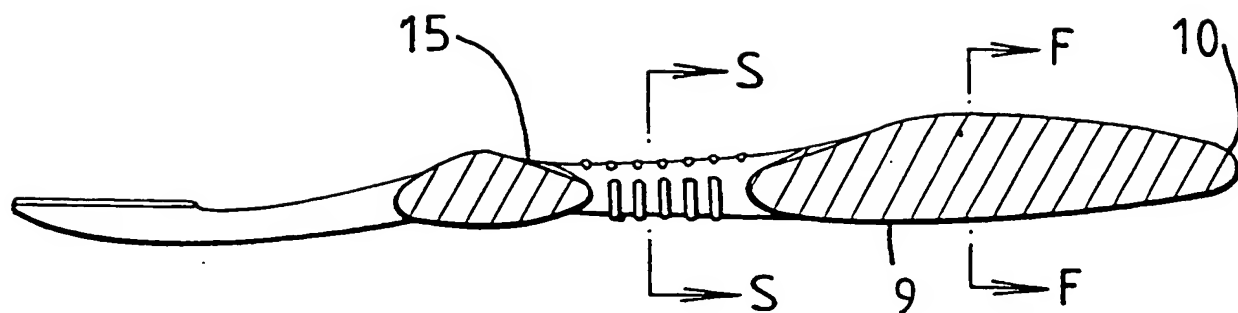
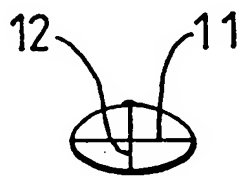
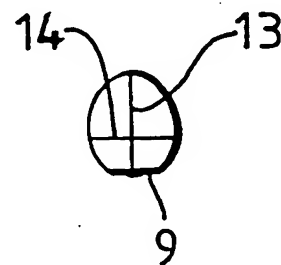
The first grip portion 2 has an ovoid cross-section, as best seen in Figure 6. A flattened portion 9 on the lower surface of the first grip portion allows the handle to rest in a stable position on a flat surface with bristle-bearing face of head 6 uppermost. Viewed in side profile, as in Figure 4, the first grip portion has an arcuate upper surface along the longitudinal direction. The proximal end 10 of the handle is rounded. As described above, the first grip portion can be detachable from the main body of the handle.

The second grip portion 3 has an elliptical cross-section, as best seen in Figure 5. Its major and minor axes, 11 and 12, are perpendicular to the major and minor axes, 13 and 14, of the first grip portion.

This embodiment comprises a third grip portion 4 which can act as a rest for the user's thumb and has a flat landing area 15 for that purpose.

9. A handle according to any preceding claim further comprising a third grip portion (4) distal the second grip portion (3), the third grip portion being both wider and deeper than the second grip portion.
10. A handle according to Claim 9 wherein the third grip portion is coated with elastomer.
11. A handle according to any preceding claim which has a primary grooming head (6) integrally or releasably attached to the distal end thereof, and wherein the grooming head has bristles extending therefrom in a direction generally parallel to the major axis of the first grip portion.
12. A personal grooming implement according to Claim 11 wherein the first grip portion is removable.
13. A personal grooming implement according to Claim 12 wherein the primary grooming head is releasably attached and the first grip portion conceals auxiliary grooming heads or a thinner skeleton.
14. A personal grooming implement according to Claim 12 or Claim 13 wherein the removable first grip portion is adapted to provide a cap which can fit over the primary grooming head.

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*Fig. 4**Fig. 5**Fig. 6*

SUBSTITUTE SHEET (RULE 26)

INTERNATIONAL SEARCH REPORT

International Application No
PCT/US 99/20606

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 4 850 735 A (HANSEN PAUL D ET AL) 25 July 1989 (1989-07-25) column 2, line 47 - line 56; figures 1A-F -----	1,13